



PERSONALITY PROFILE OF HIGH & LOW CREATIVE

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CHAPTER I

I N T R O D U C T I O N

NEED OF THE STUDY

OBJECTIVE OF THE STUDY

PROCEDURE IN OUTLINE

DELIMITATIONS OF THE STUDY

INTRODUCTION

Need of the Study :

Since the dawn of civilization man's creative imagination has played an immensely important role in the development of society. Each milestone in the pathway of development owes its establishment to some creative mind. Each creative act has added to the growth of civilization. According to Fred Hoyle "The nation that neglects creative thoughts today will assuredly has its nose ground into the dust of tomorrow." Quoted by Parnes & Harding (1962).

The progress of a nation is directly proportional to the quantum of creative manpower present in that nation. Creativity can be regarded as one of the unique powers of man, the most valued human quality. It is that human quality which can never be overlooked. Nothing but creative thinking of individual gave man the power of steam, electricity and now of atom. It gave a start to the industrialization. Various means of transport and communication are the result of creative thinking. In short, it can be said that it is the creative thinking, which has made life so easy and luxurious. The importance of creative thinking is something which cannot be ignored. The progress and potential of a country is measured in terms of its great thinkers, artists, scientists etc.

Since creativity is of paramount importance for the progress and welfare of a nation, attempts should be made to

identify the creative personality from the very beginning and provide conditions in the school and outside so that it blossoms to the maximum. The present educational system neither helps in identifying nor in fostering creativity. Infact the schools, by their conformist attitude dampen the creative urge of the students. The examination system is suited to the conformists rather than creatives. The highly gifted children are too creative to be confined within the parameter of classrooms and text-books. Genius in one field may be poor in various other fields and may perform poorly at the examination. For example, Einstien could not pass the routine examination properly. So, he was expelled from the University. Einstien was so creative that after some years, he was offered professorship by the same University. Similarly, Ramanujam and R.N. Tagore also could not pass the routine examination, whereas mediocres passed.

Thus identification of creative person is very important on all counts. A variety of tests have been constructed and standardized for the identification of creativity e.g. Guilford's measure of creativity, Torrance's test of creative thinking, Wllach and Kogan's test of creativity. Flanagan's test of Ingenuity and Mednick's Remote Association test etc. are some of the

well-known measure in this regard.

These cognitive measure of assessing creativity concentrate on a given act of creativity which the person performs in a given test situation. A study of life histories of creative individuals reveals that the individuals were not full of creative ideas at all times but such ideas came to their minds in flashes. Hence it is not sure that at a given time in a particular testing situation the creative person will always give a creative response. So, the cognitive measures of creativity, mentioned above, cannot be employed in all situations with similar efficiency. Hussain & Sharma also write "A creative person cannot necessarily be judged only by tested factors of cognitively determined creativity, i.e. fluency, flexibility, originality, elaboration, as it has been found that the same test lacks in its predictive value on different types of samples for these factors." It has also been suggested that a creative person possesses a fairly well-defined personality and thus personality and temperament are very valueable in creative performance. Sharma (1974) while discussing the relationship of creativity and personality writes "..... an individual's personality and temperament have great value in creative involvement and performances." Thus if it is possible to

identify the characteristics of a creative personality than the identification of creative person would become a comparatively easy task.

Quite a few researches have been attempted to identify the personality characteristics of a creative person in western countries (Barron, 1957; Guilford Christensen Frick & Merrifield, 1957; Stein, 1958; Palm, 1959; Stein & Heinze, 1960; Mackinnon, 1960; Getzels & Jackson, 1962; Torrance, 1962b; McClelland, 1963; Barron, 1963; Mackinnon, 1963, 1964; Taylor and Holland, 1964; Wallach and Kogan, 1965; Parloff and Datta, 1965; Torrance, 1965; Hudson, 1966; Massials & Zevin, 1967; Huges, 1969; and Barron, 1969). In India, however, very few attempts have been made in this direction. The study by Verma, 1973; Jha, 1975; and Babu, 1977; Deva, 1979 have not been able to arrive at a fairly comprehensive picture of creative personality. The studies conducted in India and abroad have either failed to arrive at a comprehensive picture of a creative personality or the findings thereof have been contradictory. Therefore, there is need of further research in this direction. Sharma (1975) after a review of researches concerned with the identification of personality characteristics of a creative person concluded that these research findings because of diverse results have not been sufficient to assign personality

characteristics of a truly creative individual. The present study, therefore, attempts to identify the personality characteristics of a creative person.

Objective of the Study :

In specific terms, the present study seeks to identify the personality characteristics which distinguish between high and low creative students studying in high school classes in some public schools of Delhi.

Procedure in Outline :

Students studying in high school classes in some public schools of Delhi were administered Baqar Mehdi's test of creativity (verbal form). A personality Inventory specially designed for this purpose was also administered to these students. The sample of the study consisted of 225 students. These students were divided into three groups on the basis of their creativity scores. The upper 50 score constituted the high creative and the lowest 50 students were designated as low creative students. The rest were termed as average on creativity. A 't' test was applied to study the significance of difference between the means of scores obtained on the different personality dimensions by high and low creativity students. This resulted in the identification of characteristics that

differentiate significantly between high and low creatives. A personality profiles of high and low creatives was also drawn.

Delimitations of the Study :

1. The investigation is confined to students studying in IX class of some public schools of Delhi. The age of these students ranged from 14 to 16. The conclusion of the study may, therefore, be evaluated keeping this age group in mind. The personality characteristics of adults or the children above or below the age range studied may be differentiated from those of the sample employed in the present study.

2. The present study has employed only a verbal test of creativity. Other measures of creativity for example a non-verbal test, Remote Association test, Flanagan's test of Ingenuity may result in a different grouping of high and low creatives which may consequently lead to a different set of personality pattern of high and low creatives. This study may, therefore, be employed with caution keeping the above facts in mind.

3. The personality inventory employed in the present study attempts to measure only 12 personality characteristics. There may be other inventories which may measure a different set of personality characteristics, which may also distinguish significantly between high and low creatives.

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CHAPTER II

REVIEW OF PREVIOUS RESEARCHES

The present study is concerned with the identification of personality characteristics of high and low creativity students at the secondary school level. A review of related researches revealed that quite a few researchers have attempted to study the personality profiles of high and low creative adults engaged in different professions. The studies of high creative children particularly those of high school age are few and far between. It was, however, considered that a study of personality characteristics of creative adults would be of great help on understanding the personality characteristics of children and adolescents; therefore, the present chapter has reviewed the studies of personality characteristics of adult in addition to those of children and adolescents.

Zelot & Kerr (1954) collected their data from 514 technical and scientific personnel by the help of an anonymous self-administered, self-description report on 56 personality trait names and a criterion of scientific productivity. The more productive scientist in the study were found to be more original, less contented, less conventional, more imaginative, more curious, more enthusiastic, more impulsive, more leading, less worrying, less inhibited, less formal, more liking for work, more subjective, more fastidious.

Barron (1957) compared the originality and personality scores obtained by 100 subjects. The high scorers on originality were found to be "intelligent, widely informed concerned with basic problem and clever and imaginative, socially effective and personally dominant, verbally fluent and possessor of initiative." The low scorers were described as conforming, rigid, stereotyped as uninsightful, apathetic and dull.

Guilford, Christensen, Frick & Merrifield (1957) attempted to explore the relationship between measure of traits of temperament and motivation and measures of factors of ability within the areas of creative performance. They found a large number of significant co-relation between the non-aptitude traits and the measures of ideational fluency and originality. Ideational fluency was found to be related to impulsiveness, self-confidence and ascendance. The obtaining high scores on originality were found to be more interested in aesthetic expression, in meditative or reflective thinking, appeared to be more tolerant of ambiguity and to feel less need for discipline and orderliness.

Stein (1958) and Stein (1962, 1963) found that creative subjects were more autonomous, more devoted to

their goals and made greater sacrifice to achieve them in comparison to non-creative subjects. The creative subjects were also more dynamic and more integrative in their approach to complex situations.

Palm (1959) compared the need characteristic as measured by the Edwards Personnel Preference Schedule of highly creative ~~counsellor~~ with those scoring high on Miller Analogies. The criterion groups consisted of upper 20 percent on each measure, eliminating of course those who scored high on both the measures. The highly creative groups were found to have significantly stronger needs than the high Miller Analogies group on deference, exhibitionism, succorance, abasement and change. Thus these highly creative counsellors are characterised by what would appear to be polar opposite needs and an ability to tolerate the tension arising from them.

Stein and Heinze (1960) attempted to identify the personality characteristics of highly creative individuals. They employed traditional personality tests such as Minnesota Multiphasic Personality Inventory, Thematic Apperception Test, Rorschach etc. as measures of personality characteristics. They found

that the following personality characteristics differentiated the highly creative persons from less creatives. Accepts discorders, adventurous, strong affection, altruistic, awareness of others, always baffled by something, attracted to mysterious and courageous.

After a number of studies of the relationship between creativity and personality at the University of California Institute for personality Assessment and Research, Mackinnon (1960) concluded that creative individuals are less interested in small details and the practical and concrete aspects of life and more concerned with meanings, implications and symbolic equivalents of things and ideas. He further concluded that the most important characteristics of the creative personality is the capacity to tolerate the tension of opposed strong values and to bring about integration synthesis and reconciliation of them.

Gatzels & Jackson (1962) employed a device very similar to Thematic Apperception Test for identifying the personality characteristics of creative persons. He presented two picture stimuli one depicting a businessman returning from a business trip and the other showing a high school boy doing his home work. The

boys were asked to interpret the pictures. It was concluded that:-

1. The highly creative adolescents are more stimulus-free, they are less bound by the instructions given to them than the less creative person. They structure the task at their own terms.
2. The highly creative members of the group are much more humorous and fanciful. They seem to "experience" a special delight in playfulness in the intellectual activity for its own sake.
3. The highly creative subjects seem to exhibit more violence and aggression. For highly creative students the picture assumed a personal meaning.

Torrance (1962b) surveyed a large number of studies and compiled a list of 84 characteristics which discriminated between creative and non-creative subject in one study or another. Some of the important characteristics of his list are presented below:-

- | | |
|---------------------------|----------------------------|
| 1. Accepts disorder | 2. Attracted to mysterious |
| 3. Baseful outwardly | 4. Determination |
| 5. Dominant | 6. Full of curiosity |
| 7. Persistent | 8. Reserved |
| 9. Adventurous | 10. Radical |
| 11. Willing to take risks | 12. Attempts difficult job |

- | | |
|----------------------|------------------|
| 13. Desires to excel | 14. Discounted |
| 15. Energetic | 16. Independence |

In another study Torrance (1962b) found that children high in divergent thinking produce ideas that are "off the beaten track".

McClelland (1963) suggested that an important characteristic of the creative individual is a willingness to take risks, to form surprising associations and giving expression to ideas that are not consensual. Non-conformity may be a pervasive life style, for it appears not only in response to test items but also in such activities as the choice of career.

Barron (1963) found that his creative subjects prefer complexity and some degree of apparent asymmetry in perceptual phenomena. Their judgement tended to be independent and highly resistant to group pressure.

Mackinnon (1963) employed Alport Vernon — Lindzey study of values with creative architects, scientists and mathematicians etc. and found that the highest value for research scientists was theoretical followed by aesthetic, for architects, the aesthetic value is the highest with theoretical value in second place while for the creative mathematicians the two values, still above average are approximately equally high.

In another study Mackinnon (1964) employed California Psychological Inventory to identify personality characteristics of potentially creative persons. He found that creative architects possess those qualities and attributes which underlie and lead to the achievement of social status, poise and self-confidence in personal and social interaction, (though not of an especially sociable or participative temperament) intelligent, outspoken, sharp, confident and self-assured and relatively uninhibited in expressing their worries and complaints. In another study Mackinnon (1964) found that creative architects score high in theoretical and aesthetic values and low in economic values.

Drevdahl (1956, 1964) and Cattell (1963) found various creative groups low in extraversion, more concerned with ideas than with people and rather uninterested in activities of social nature. Taylor and Ellison (1964) report such related characteristics as self-sufficiently and low sociability for creative scientists.

Getzels & Csikszentmihalyi (1964) provide similar data for art students. The portrait is not so much one of antipathy or even indifference to people but rather of greater interest in thought and beauty and of rejection of the pursuit of material good and mere gregariousness

or conventional sociability as barriers to self-expression intimacy and individuality.

Taylor & Holland (1964) report that creative Air Force scientist placed a high value on thinking manipulating ideas and aesthetics.

Chambers (1964) attempted to investigate traits differentiating highly creative research scientists from less creative ones. He administered 232 item questionnaire to 740 male scientists (400 chemists and 340 psychologists). Within each profession half the sample was comprised of men who were not eminent researchers but, who matched individuals in the former group on the basis of age, discipline, amount of education and opportunity to do research. Creative scientists were found to be more dominant and to have stronger initiative than the less creative one. Creative groups also appeared much more strongly motivated towards intellectual work.

Garwood (1964) also attempted to study the relationship between personality factors and creativity in young scientists. He designated the scientists as High Creative (HC) or Low Creatives (LC) on the basis of scores on a creativity test battery. There were also given a personality test. The HC group scores higher than the

LC group on composite personality dimensions: dominance, sociability, social presence and self acceptance. The HC group score lower on socialization, self-control, desire to make a good impression and affection. The HC group showed greater integration of non-conscious material as pertaining to concepts of self, father and mother than did the LC group; the groups differed in degree of conscious identification with mother (HC less than LC).

Wallach & Kogan (1965) in a bid to study the effect of modes of thinking on personality traits selected a sample of 151 fifth grade children (70 boys and 87 girls) from middle class families with respect to socio-economic status. They found that the highly creative and intelligent girls behaved in ways indicative of high levels of "ego strength". The girls high in creativity but low in intelligence appeared to be having the greatest difficulty in coping with the achievement and the social demands of the school situation. Their academic motivation was low. This was also found that creative adolescent performs an action with vigour and imagination provided it suits his temperament. He looks at every thing with an experimental outlook since such an attitude provides outlets to his creative energies.

Parloff and Data (1965) of the National Institute of Mental Health conducted a very exhaustive study using California Personality Inventory. Their subjects were high and low creative scientists. They found that high creative scientists were more ambitious and driving, more independent, autonomous, self-reliant, more efficient and perspective, more rebellious towards rules and constraints and more imaginative. Further the differentiating characteristics were:-

- (a) independence, curiosity and openness,
- (b) a relatively no requirement for warmth in interpersonal relations, and,
- (c) a relatively high concern for making a good impression.

Torrance (1965) attempted to study personality characteristics of children. He found that the creative children possessed the following characteristics:-

observation of imitation, experimentation, imaginary play-mates, fanciful explanation, fantastic stories, construction of new games, explanation of language, appropriate questions, leadership with plans and aesthetic appreciation, observation of standardized situations such as house keeping game, the fanciful naming of visual stimuli, leadership in imaginative games and block building.

Kneller (1965) considers the following personality characteristics as essential for the development of creativity.

Intelligence:- A creative person is above average in intelligence. The degree of intelligence depends upon the work which a creative person does e.g. a creative scientist is likely to be more intelligent than a creative novelist or a painter.

Awareness:- Another quality is awareness. A creative person notices things that other people do not, such as colours, textures, personal reactions, items in newspaper and so forth. He is more open to the environment and experiences more than other people.

Skepticism:- The creative person tends to be more skeptical of accepted ideas and less suspicious of new ones.

Persistence:- Creativity calls for persistence, since it must often be sustained over long periods of time and in the face of formidable obstacles.

Intellectual "playfulness":- The creative person is given to exploring ideas for their own sake, toying with them to see where they will lead to. This trait is connected with his fluency. The creative person naturally plays with ideas because he produces more of them than the ordinary person.

Humour:- A creative person sees more meaning in a situation than does the ordinary person, many of them subtle and unusual. He also has a marked sense of humour or an ability to react spontaneously to disorder-ness in meaning or implication. His ego is highly flexible and hence can withdraw more easily from his subconscious, permitting him to make those novel connections that are the essence of humour.

Non-conformity:- A creative person is independent and confident of himself. He is original in his ideas and open to experience. He is unconventional not for its own sake but in the course of creativity.

Self-confidence:- The creative person has an inner confidence in the worth of his work.

Cattell (1966) employed his 16 P.F. Inventory for identifying the personality characteristics of eminent researchers in Physics, Biology and Psychology (N = 140) and found that the scientists are more intelligent, more inhibitant, more desurgent, more emotionally sensitive, more radical and somewhat more given to controlling their behaviour by an exacting self concept.

Hudson (1966) reported that "creative" produced "rare themes" in drawing significantly more often than

did "non-creatives". A striking and consistent finding in his study was the presence of humour in the association and fantasy production of the creative children. According to Massials & Zevin (1967) creative person possesses the following traits:-

intelligence, awareness, fluency, flexibility, originality, elaboration, skepticism, persistence, intellectual playfulness, humour, non-conformity and self-confidence.

Hughes (1969) found that the high creative can be distinguished from their less creative peers by their good but selective memory, openness to new experiences, self-discipline, introversion, divergent thinking, attraction to disorder.

Barron (1969) employed the California Psychological Inventory for identifying the personality characteristics of creative workers and found that they are outstanding in term of flexibility and ability to achieve through independent effect as opposed to achievement through conformance, they are also high in self-acceptance, social participativeness and the capacity for gaining high social status.

A Factor Analytic study of Divergent Thinking in relation to certain Personality Dimensions was conducted by Verma (1973). His sample consisted of 640 students of higher secondary school. The battery of tests of divergent thinking for school-going adolescent was developed on the lines of Guilford, Getzel and Jackson, Wallach and Kogan and Torrance. He found that autonomy, non-conformity and openness of mind were related to creativity.

Jha (1975) attempted to identify personality characteristics of creative persons. He compiled a list of 264 creative persons on the basis of all India awards like Bharat Ratna, Padma Shri, Padma Bhushan etc. A panel of judges drawn from University Professors ranked these persons for their creativity. The creative persons were requested to fill in a self data card. Their responses on this self data card were factor analysed. The main findings of the study were:-

1. the first factor emerged with the description of the creative person as having rational optimism, high ego strength, realistic and healthy attitude towards life, openness to experience, assertive self-confidence and tendency for self-actualisation.

2. the second centroid was a bipolar factor having high positive loadings with mystical-intuitive guidance from inner self, whereas its negative loading with non-mystical, industrious, exerting, and extravert behaviour and,
3. the third, bipolar centroid was positively loaded with self-expression, openness to experience, flexible value orientation and negatively loaded with fixed value orientation, methodical, social, extrovert and sensational type of behaviour.

Babu (1977) conducted a very comprehensive study employing 4982 subjects for identifying the personality characteristics of creative persons. He obtained two groups, high intelligence - high creativity group, and high intelligence - low creativity group by the help of standardized test of creativity and verbal and non-verbal intelligence. The sample gave proportionate representation to sex, rural-urban residence and different educational level. The study reveals that the following personality factor discriminate significantly the above-mentioned two groups that is high intelligence, high creativity and high intelligence - low creativity. Self-reliance withdrawing tendencies (freedom form), nervous symptom (freedom form), social standards, antisocial tendencies

(freedom form), family relations, school relations and general anxiety, discriminated significantly between the two groups.

Deva (1979) employed Flanagan's Critical Incidents Techniques for identifying the personality characteristics of creative scientists. His study resulted in the following list of bi-polar characteristics of creative scientists. The first word of these bipolar terms is indicative of a creative scientist.

1. High intellect - Low intellect
2. Good scholarship - Poor scholarship
3. Original - Stereotyped
4. Open minded - closed minded
5. Persevering - Easy going
6. Sceptical - Conforming
7. Systematic - Disorganised
8. Observant - Inattentive
9. Curious - Indifferent
10. Confident - Uncertain
11. Independent - Dependent
12. Introvert - Extrovert
13. Productive - Unproductive
14. Fluent - Flattering

An attempt has been made in the preceding paragraphs to review some well-known studies which have attempted to investigate the relationship between creativity and personality characteristics. A perusal of these studies would reveal that a creative person possesses the following characteristics:-

1. Openness of mind (lack of rigidity):- A creative person has new ideas which minimally depend on known information. He is more stimulus free and less bound by instruction given to him. (Torrance, 1962; Kneller, 1965; Jha, 1975; Verma, 1973; Parloff & Datta, 1965 and Hughes, 1969)
2. Skepticism (Attracted to mysterious, full of curiosity):-

The creative person tend to be more skeptical of accepted ideas and less suspicious of new one. He is always doubtful of the conventional believes and tend to accept new ideas which predispose him to creativity. (Deva, 1979; Kneller, 1965; Holland, 1961; Getzels & Jackson, 1962; Zelot & Kerr, 1954; Jha, 1975; Torrance, 1965; Stein, 1960; Heinze, 1960; Torrance, 1962; Massials & Zevin, 1967)

3. Persistence (devoted to their goal, initiative, motivation):- A creative person tends to work for long hours in face of formidable obstacles. (Kneller, 1965; Stein, 1962, 1963; Chambers, 1964; Barron, 1957; Torrance, 1962; Massials & Zevin, 1967; Parloff & Datta, 1965)

4. Non-conformity (radical, opposite of stereotyped):-

A creative person is a non-conformist and an independent person. (Getzels, 1962; Jackson, 1962; Kneller, 1965; Stein, 1960; Heinze, 1960; Verma, 1973; Palm, 1959; Zelot, 1954; Kerr, 1954; Zevin, 1966; Barron, 1957)

5. Self-confidence :- A creative person has more than average degree of self-confidence in the work of his worth.

(Kneller, 1965; Guilford, 1957; Christensen, 1957; Frick, 1957; Merrifield, 1957; Jha, 1975; Stein, 1960; Heinze, 1960; Makinnon, 1964; Taylor, 1964; Ellision, 1964; Deva, 1979; Cattell, 1966; Zevin, 1960; Parloff & Datta, 1965)

6. Humour (playfullness, jocularity) :- High creative student is more humourous and fanciful than the average child or even high I.Q. child. Perhaps this is due to the fact that a creative child has more meaning in a given situation than does a normal child and feels much delight in playful activity for its own sake. (Getzels, 1962; Jackson, 1962; Kneller, 1965; Stein, 1960; Heinze, 1960; Palm, 1959; Zelot, 1954; Kerr, 1954; Hudson, 1966; Zevin, 1966)

7. Less social adjustment :- A creative child is less adjusted to his fellows than the average child. He is more interested in his own ideas than he is in popularity and social acceptance. (Kneller, 1962; Babu, 1977;

Mackinnon, 1960; Cattell, 1963; Drevdahl, 1956, 1964; Garwood, 1964; Chambers, 1964; Taylor, 1964; Ellisdon, 1964; Parloff & Datta, 1965)

8. Emotional sensitivity (altruistic, awareness of others):- The creative child is more emotionally sensitive to his environment. He possesses a greater readiness to response emotionally. (Jha, 1975; Kneller, 1965; Stein, 1960; Heinze, 1960; Mackinnon, 1963; Palm, 1959; Babu, 1979; Getzels & Csikszentmihayli, 1964; Cattell, 1966; Massials & Zevin, 1967)

9. Impulsive (adventurous):- A creative child is very impulsive. He does not work according to fore-thought, outplan. He has a great risk taking capacity. (Palm, 1959; Kneller, 1965; Stein, 1960; Heinze, 1960; Torrance, 1962; Mc Clelland, 1963; Getzels, 1962; Jackson, 1962; Guilford, 1957; Christensen, 1957; Frick, 1957; Merrifield, 1957)

10. Low Extraversion:- The creatives are low in extraversion. They generally keep away from people, but they are not shy of meeting people. (Deva, 1979; Jha, 1975; Kneller, 1965; Mackinnon, 1968; Stein, 1960; Heinze, 1960; Drevdahl, 1963; Cattell, 1963; Hughes, 1963)

11. Lack of Neuroticism:- Creatives are rather stable than neurotic. (Guilford, 1957; Christensen, 1957; Frick, 1957; Merrifield, 1957; Mackinnon, 1963)

12. Less need for discipline and orderliness:- The creative person does not show discipline and orderliness in general fields. The creative student is often difficult to handle. He is more independent and self-absorbed than the conventional child and hence less friendly and communicative. Often he is less studious and orderly. (Deva, 1979; Kneller, 1962; Stein, 1960; Heinze, 1960; Torrance, 1962; Hughes, 1969; Guilford, Christensen, Frick & Merrifield, 1957)

13. Less worries :- The creative person is very lively and does not worry on trifles. (Mackinnon, 1964)

14. Ability to tolerate tension :- A creative person has the capacity to tolerate the tension of opposed strong values and to bring about integration, synthesis and reconciliation of them. (Mackinnon, 1960; Palm, 1959; Deva, 1979)

15. Dominant (Ascendence) :- The creative person generally dominate over others in social interaction and intellectual meetings. (Barron, 1957; Getzels, 1962; Jackson, 1962; Torrance, 1962; Stein, 1960; Heinze, 1960; Guilford, 1957; Christensen, 1957; Frick, 1957; Torrance, 1965; Merrifield, 1957; Babu, 1977; Zelot, 1954; Kerr, 1954; Garwood, 1964)

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CHAPTER III

DESIGN OF THE STUDY

Tools Employed

Sample of the Study

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DESIGN OF THE STUDY

The present study is an attempt to identify the personality characteristics of students that distinguish significantly between the high and low creativity students studying in high school classes in some public schools of Delhi. Such a study would necessarily require suitable tools for the measurement of creativity and personality. Baqar Mehdi's Test of Creativity verbal form was employed for the measurement of creativity and a 12 personality factors inventory was employed for the assessment of personality characteristics. These tools have been described in the following pages.

Tools Employed

1. BAQAR MEHDI'S TEST OF CREATIVE THINKING (Verbal form):-

This test battery is meant to identify creative talent at all stages of education, except pre-primary and primary. Test includes three traits (out of six as described by Guilford), viz., fluency, flexibility and originality. Test consists of four sub-tests, namely, consequence test, unusual uses test, similarity test and product improvement test. The number of relevant responses give the measure of one's ideational fluency, the number of shifts

in the thinking trends of the consequences gives the measure of one's ideational fluency, the number of shifts in the thinking trends of the consequences gives the measures of verbal flexibility, and the statistical in frequency of the response or the thinking departure from the common place gives the measure of originality. The test-retest reliabilities of the factor scores and also the total scores are considerably high ranging from .896 to .959. The reliability of the total creativity score .959 which is quite high. Validity of the test was obtained by correlating the scores obtained on this test and teacher's rating of creativity. A co-efficient of correlation .39 was obtained for total test and .40, .32 and .34 for fluency, flexibility and originality respectively.

2. 12 FACTOR PERSONALITY INVENTORY:-

A joint Factorial study of Eysenck Personality Inventory, Cattell 16 P.F. scale and Guilford Personality Inventory by Soueif, Eysenck and White resulted in the identification of the following 12 personality factors.

- | | |
|-------------------|--------------------------|
| 1. Mood Swings | 2. Lack of Concentration |
| 3. Social Shyness | 4. Psychosomatic |
| 5. Worries | 6. Nervousness |
| 7. Sensitivity | 8. Inferiority Feelings |
| 9. Sociability | 10. Jocularly |
| 11. Liveliness | 12. Impulsiveness |

The items of the above mentioned 3 personality inventories with high loadings (a loading .5 or more) on the above 12 factors were selected and translated in Hindi by Singh and Shyamlat^{*}. These items constituted the 12 factor personality Inventory employed in the present investigation. This inventory has been found to possess satisfactory reliability and validity by Singh (1978).

Sample of the Study

The above-mentioned measures of creativity and personality were administered to 225 students studying in High School classes selected randomly from the following public schools of Delhi.

1. Modern School
2. St. Anthony School
3. Presentation School
4. Summer Field Public School

The age of these students ranged from 14 to 16 years.

Procedure Employed

The scores obtained by these students on 3 measures

* A research student of Education Department, A.M.U. Aligarh

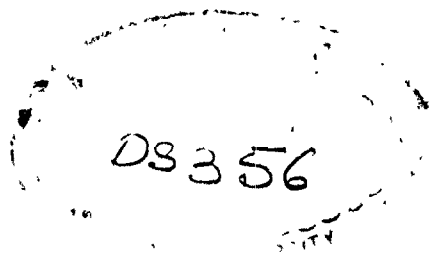
of creativity namely, fluency, flexibility and originality were converted into standard scores and added to obtain a composite measure of creativity. The creativity scores were arranged into descending order of scores. The top 50 students comprised the high creative group and the lowest 50 students comprised the low creative group. The 12 factor inventory was also administered to the above-mentioned sample. The means of scores obtained on all the 12 factors separately by the high and low creativity students were compared to identify the personality characteristics that distinguish between the high and low creativity student. A 't' test was employed to ascertain the significance of difference between the means of personality scores. This comparison of the means of personality scores also yielded and personality profiles of high and low creativity students.

CHAPTER IV

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

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PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

The present study seeks to identify the personality characteristics of creative students studying in high school classes. Baqar Mehdi's test of creative thinking (verbal form) was employed as a measure of creativity and a 12 factor personality inventory as measure of personality. The test of Creative Thinking was administered to 225 students of IX class, studying in 4 Public Schools of Delhi (Table I). These public schools were selected randomly from a larger number of schools of Delhi. The students were also selected randomly from these schools. Thus the sample is expected to be a fairly representative one.

TABLE I - Institutions and Number of Students employed

S.No.	Name of the Institutions	Number of students
1.	Summer Field Public School	87
2.	Modern School	26
3.	St. Anthony School	40
4.	Presentation School	36
5.	Lady Irvin School	36
Total		225

The above measures were administered on two successive days, therefore, there were quite a few students who did not take the two measures simultaneously. Obviously, the scores of such students could not be employed for the present study. An examination of the answer sheets revealed that some of the students attempted the questionnaire carelessly. This was evident from the incomplete work done by them. Answer sheets of such students had to be rejected. Ultimately the investigator was left with only answer sheets of 130 students.

The answer sheets were scored according to the direction given by the respective authors of the tests and inventories. The scoring procedure of Baqar Mehdi's test is slightly difficult. The answer sheets for first score, fluency and flexibility were scored in the usual way. The originality score was obtained on the basis of unusualness of the responses given by the students comprising the sample. The relevant responses given by less than 5 percent members of the group were considered for assessing originality. The responses which occurred only in 1 percent cases in the whole sample, were given a credit of 5, those occurred in 2 percent

cases were given a credit of 4, those occurring in 3 percent cases were allotted a score of 3. Score of 2 was given to the responses which occur in 4 percent in the sample, a score of 1 was given to the responses which occurred in 5 percent cases. Responses occurring more than 5 percent times were given no credit for originality.

The means and S.D. of the fluency, flexibility and originality scores were computed and the scores were converted into standard scores. The total of the standardized scores constituted the measures of creativity.

Figure No. I and table No. II presents the scores obtained by 130 students on the creativity test. The scores ranged from 73 to 224. The standard deviations and means of the distribution of creativity scores are 22.07 and 148 respectively. The range is fairly wide being 3.40 S.D. units below the mean and 3.44 S.D. units above the mean. The distribution is also fairly symmetrical.

TABLE II - Range and other statistics of creativity scores (N = 130)

Range	Mean	S.D.	Spread in S.D. units	
			Below mean	Above mean
73-224	148	22.07	3.40	3.44

The figure 2 and table III present the distribution of the score on the 12 factors of the personality inventory. It will be seen from the figures and the table that the distribution of scores for most of the personality factors is normal or symmetrical, there being insignificant differences between the spread of scores above and below the means. However, the distribution for the personality factor "Jocularly" is slightly positively skewed. An inspection of the figure will reveal that the skewness is not so pronounced as to influence the interpretation of the data therefrom.

TABLE III. Range and other statistics of 12 personality factors scores (N = 130)

S.No.	Personality factor	Range	Mean	S.D.	Spread in S.D. units	
					Below mean	Above mean
1.	Mood Swings	1-10				
2.	Lack of concentration	0-10	5.53	2.78	1.98	1.60
3.	Social Shyness	0-12	6.09	2.93	2.07	2.01
4.	Psychosomatic	0-10	3.21	2.71	1.18	2.50
5.	Worries	0- 9	4.18	2.95	1.41	1.63
6.	Nervousness	0- 9	4.93	2.62	1.88	1.55
7.	Sensitivity	0-12	6.86	2.54	2.70	2.02
8.	Inferior feelings	0-10	5.41	2.65	2.04	1.73
9.	Sociability	5-22	14.00	3.80	2.36	2.10
10.	Jocularly	5-18	17.20	3.84	3.20	0.20
11.	Liveliness	4-17	10.26	3.06	2.04	2.20
12.	Impulsiveness	3-17	8.80	2.84	2.04	2.88

The creativity scores were arranged in an ascending order and the students were divided into three equal groups. The upper group constituted high group and the lower group constituted as low group. The means of scores obtained on the 12 factors of the personality inventory by the high and low creatives were then compared. The 't' test was employed for the purpose. Before employing the 't' test it was ascertained whether the data satisfied the assumption necessary for the satisfactory interpretation of the 't' test data. The assumption necessary for the satisfactory interpretation of the 't' test data are given below:-

The interpretation of 't' test result required satisfaction of the following two assumptions (Popham, 1967):-

1. The sample data must be drawn randomly from the population and,
2. the population from which each sample is drawn must be normally distributed.

An attempt has been made in the following paragraphs to see that whether the afore-mentioned assumptions are satisfied by the data.

Assumption (1). The sample data must be drawn randomly from the population : The sample of the present study

consisted of 225 Hindi knowing students studying in high school classes of some public schools of Delhi. These schools were selected randomly from all the public schools of New Delhi and Old Delhi. The students comprising the study were also selected randomly from the respective classes in these institutions. Therefore, the assumption that the sample data must be randomly drawn from the population is satisfied.

Assumption (2). The population from which each sample is drawn must be normal; The satisfaction of these assumption required that the population from which the sample is drawn must be normally distributed. For this purpose, the practice is that if the sample data are nearly normally distributed and do not depart drastically from normality the population data is also assumed to be normally distributed. Guilford (1956) also writes that if the data is only symmetrical and not even normal, then the assumption of normality for the interpretation of the results of 't' test are satisfied. Popham (1967) also suggests that a stringent satisfaction of this assumption is not essential for the interpretation of the results of 't' test. It was, therefore, decided that for the purpose of interpretation of 't' test, the requirement of this assumption would be satisfied even when the distribution was nearly symmetrical let alone being normal.

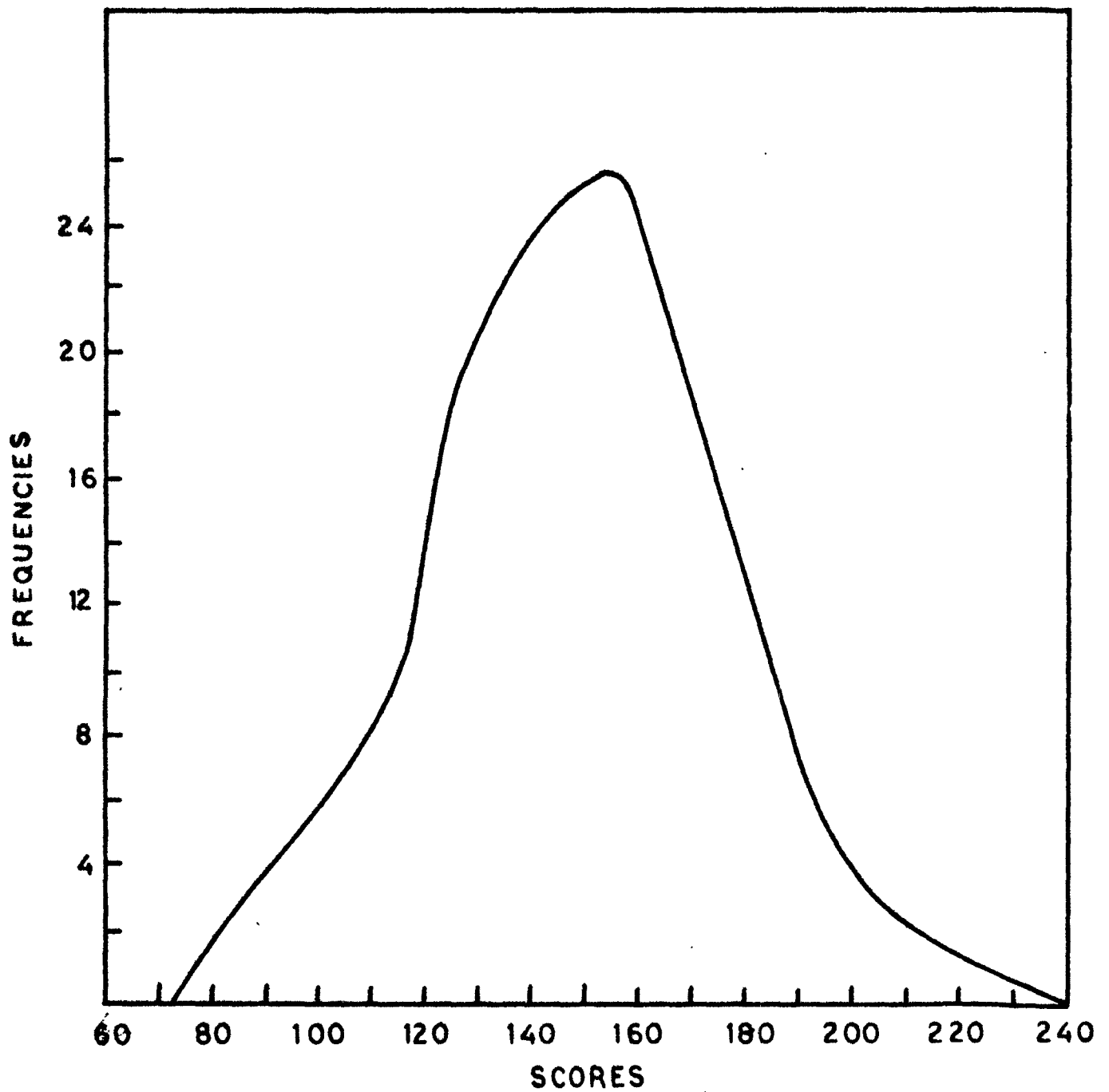


Fig. 1 Distribution of creativity scores obtained by 130 students

Figure 1 presents the distribution of the creativity scores for the total sample. Table No. II presents the range, mean and standard deviations of the creativity scores. These figures and tables show that the distribution of creativity scores is fairly symmetrical. The spread of scores below and above the mean is 3.40 and 3.44 respectively in standard deviation units.

Figure 2 presents the distribution of the scores obtained by the students comprising the sample of the study on 12 personality factors. Table No. III presents the range, mean, standard deviation and the spread of the scores below and above the means in standard deviations units. A perusal of the figures reveals that all the distributions except that for 'Jocular' are fairly symmetrical. The distribution of the scores on 'Jocular' are slightly positively skewed. This skewness is not likely to affect the interpretation of 't' test data adversely. This is corroborated by the statistics presented in Table No. III. The difference in the spread of scores in Standard Deviation units below and above the mean in all cases except 'Jocular' is insignificant. This difference for 'Jocular' is not large enough to show drastic departure from symmetry. The above description shows that both the measures employed in the study

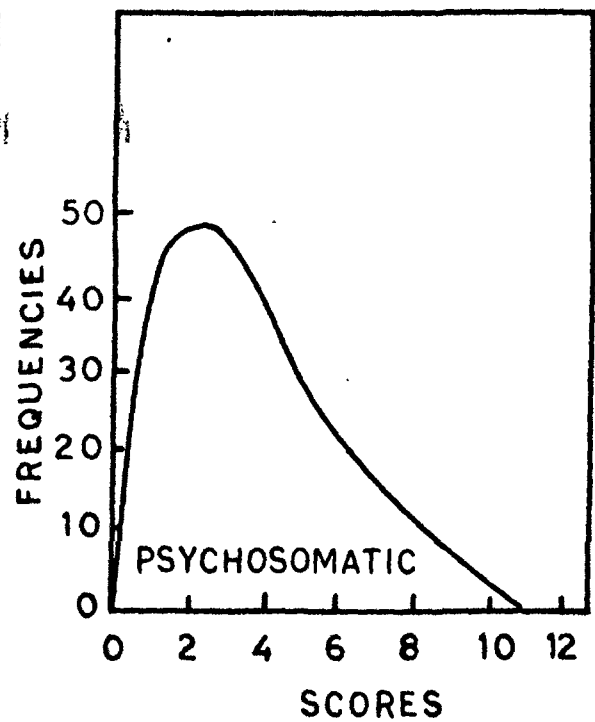
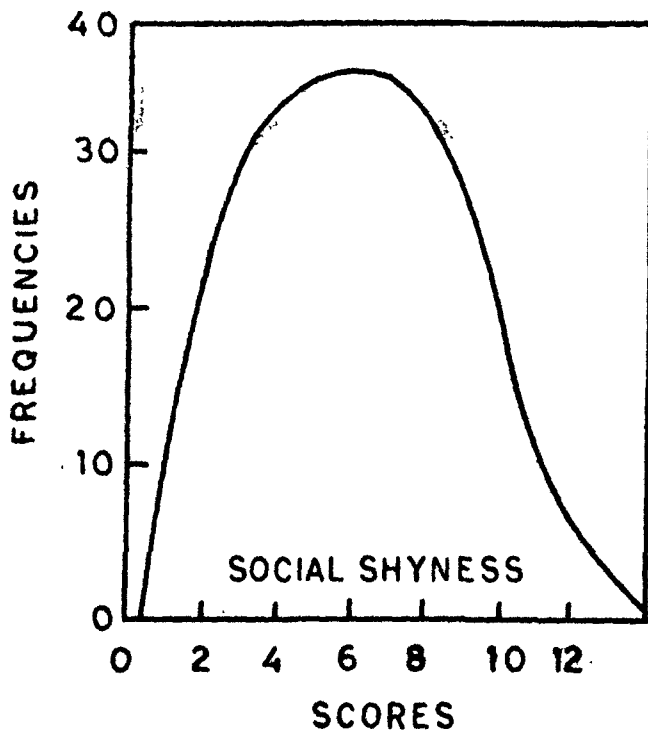
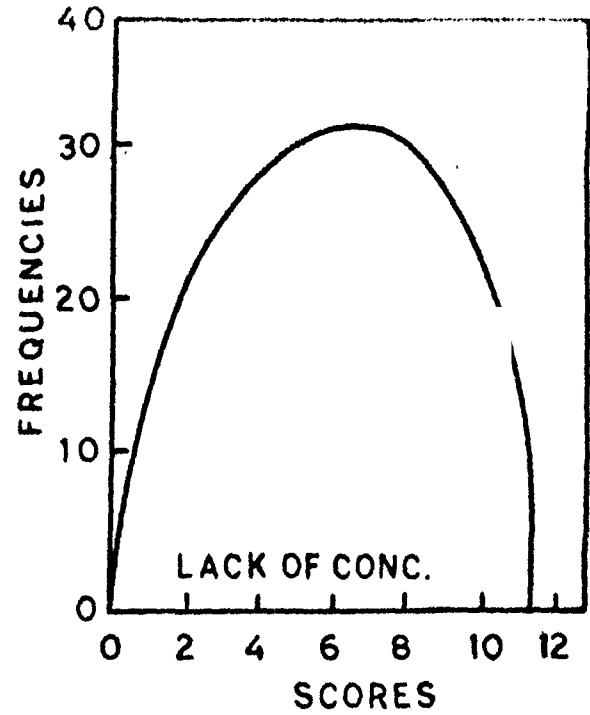
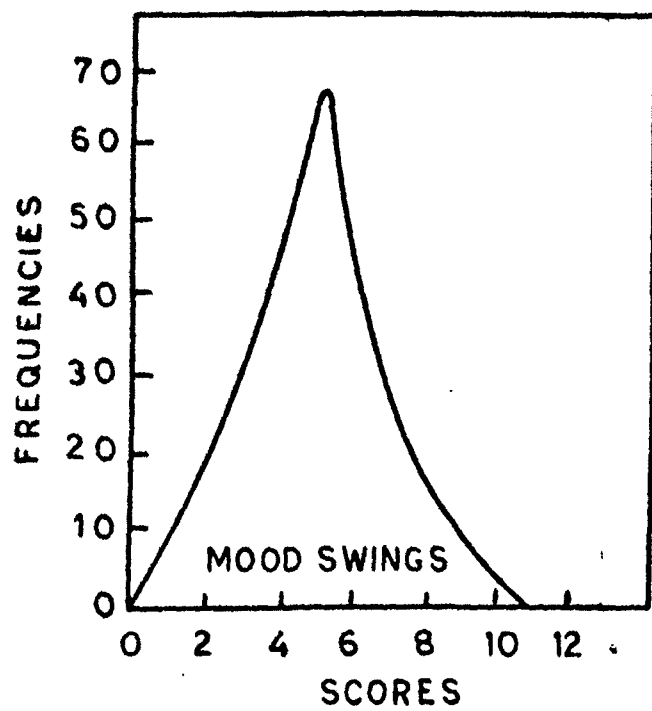


Fig.2 Distribution of scores obtained by 130 students on different personality factors

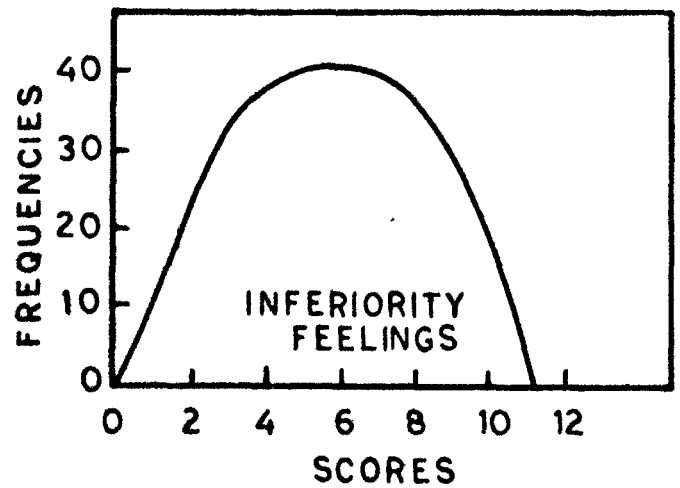
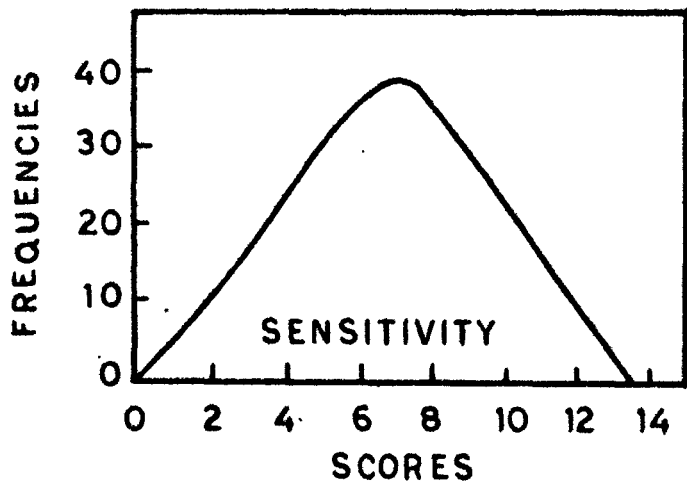
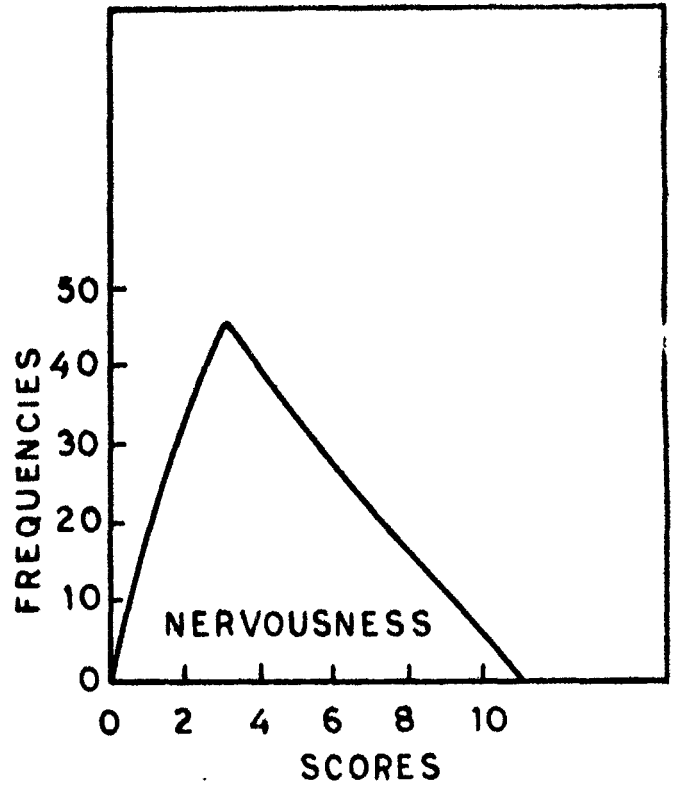
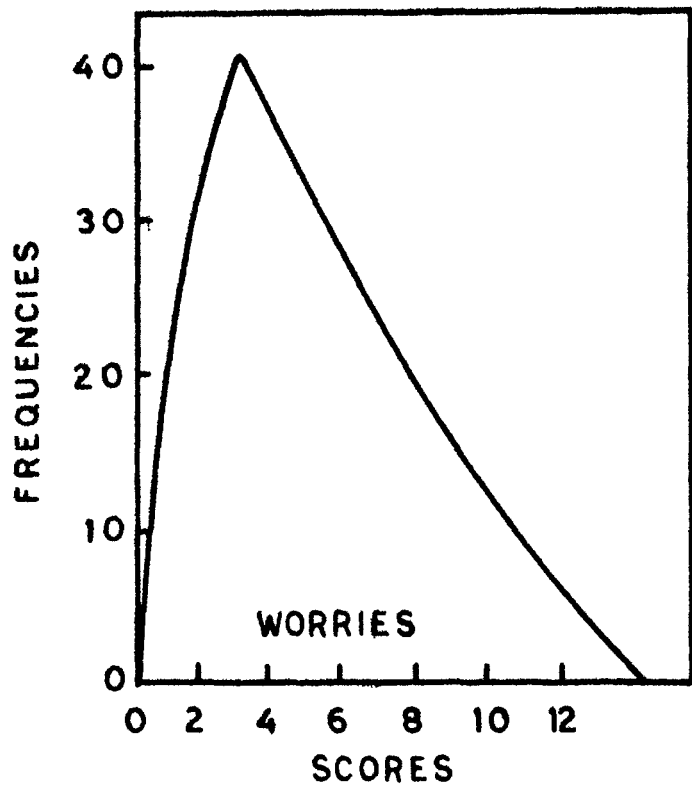


Fig. 2 (contd.) Distribution of scores obtained by 130 student on different personality factors

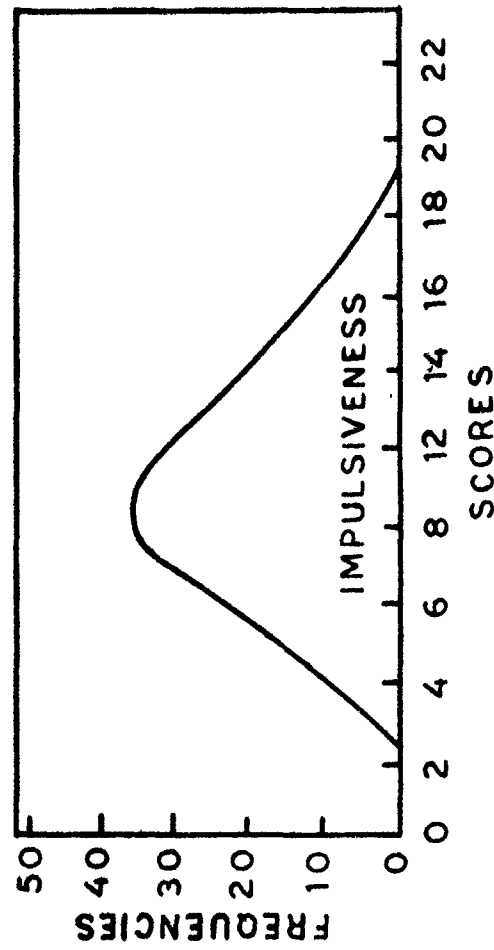
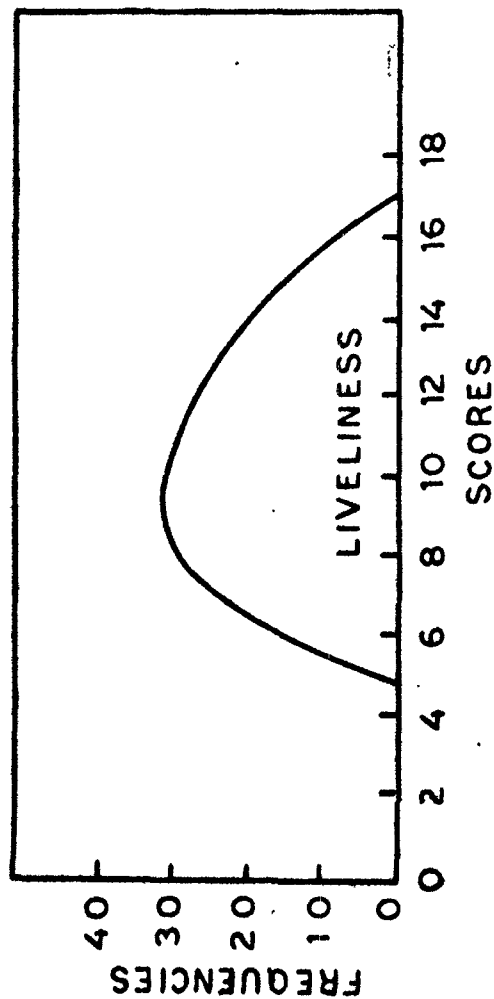
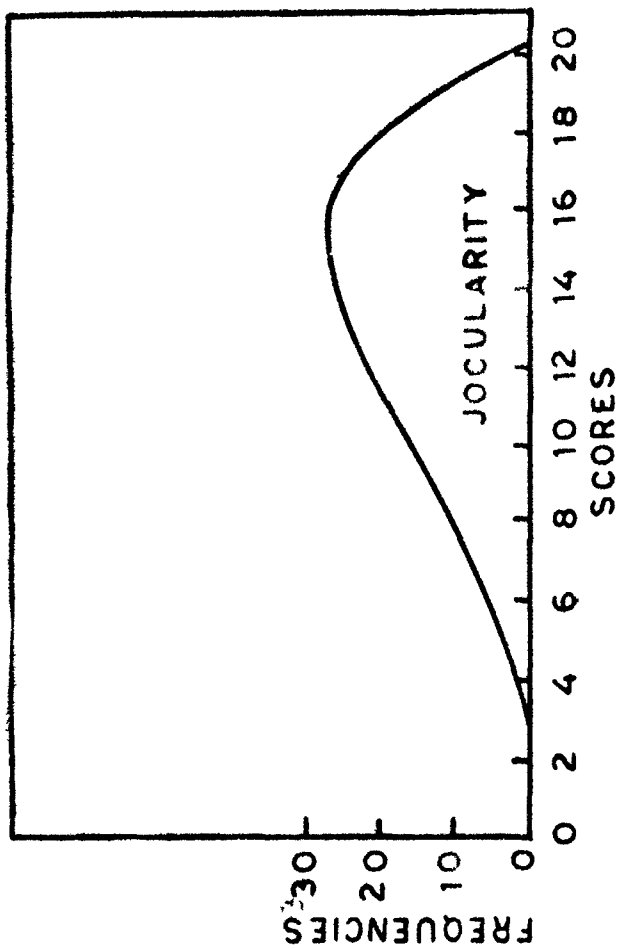
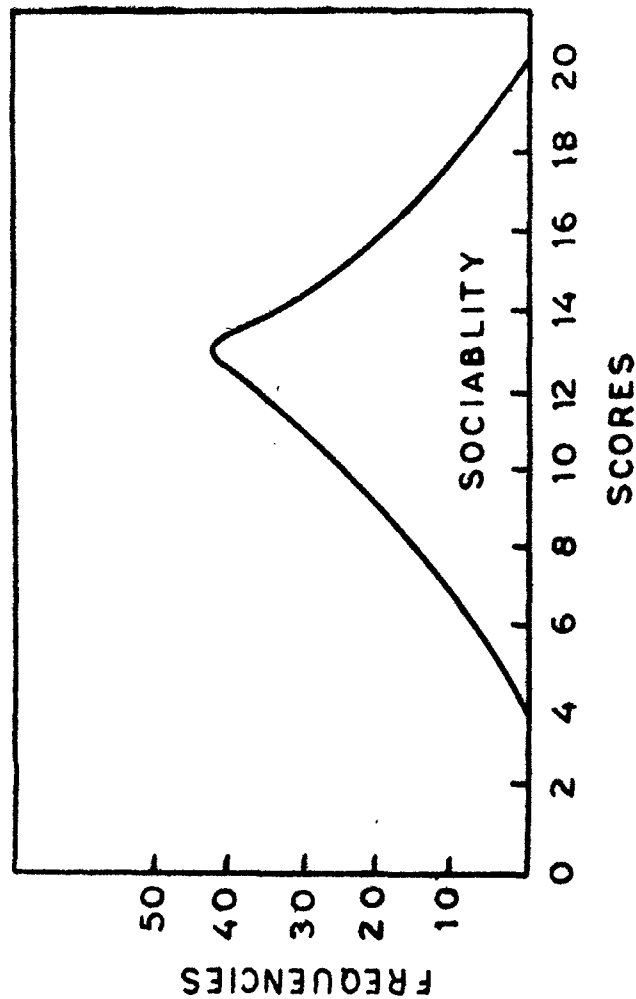


Fig. 2 (contd.) Distribution of scores obtained by 130 students
on different personality factors

have symmetrical distributions. Thus the second assumption of the study is fairly satisfied.

The above description fairly indicates that the data on the creativity test and the personality inventory were suitable for the application of 't' test. 't' values were computed for the difference between the means of 12 personality scores obtained by high and low creatives. Table No. IV presents the 't' value and their computation for the 12 personality factors.

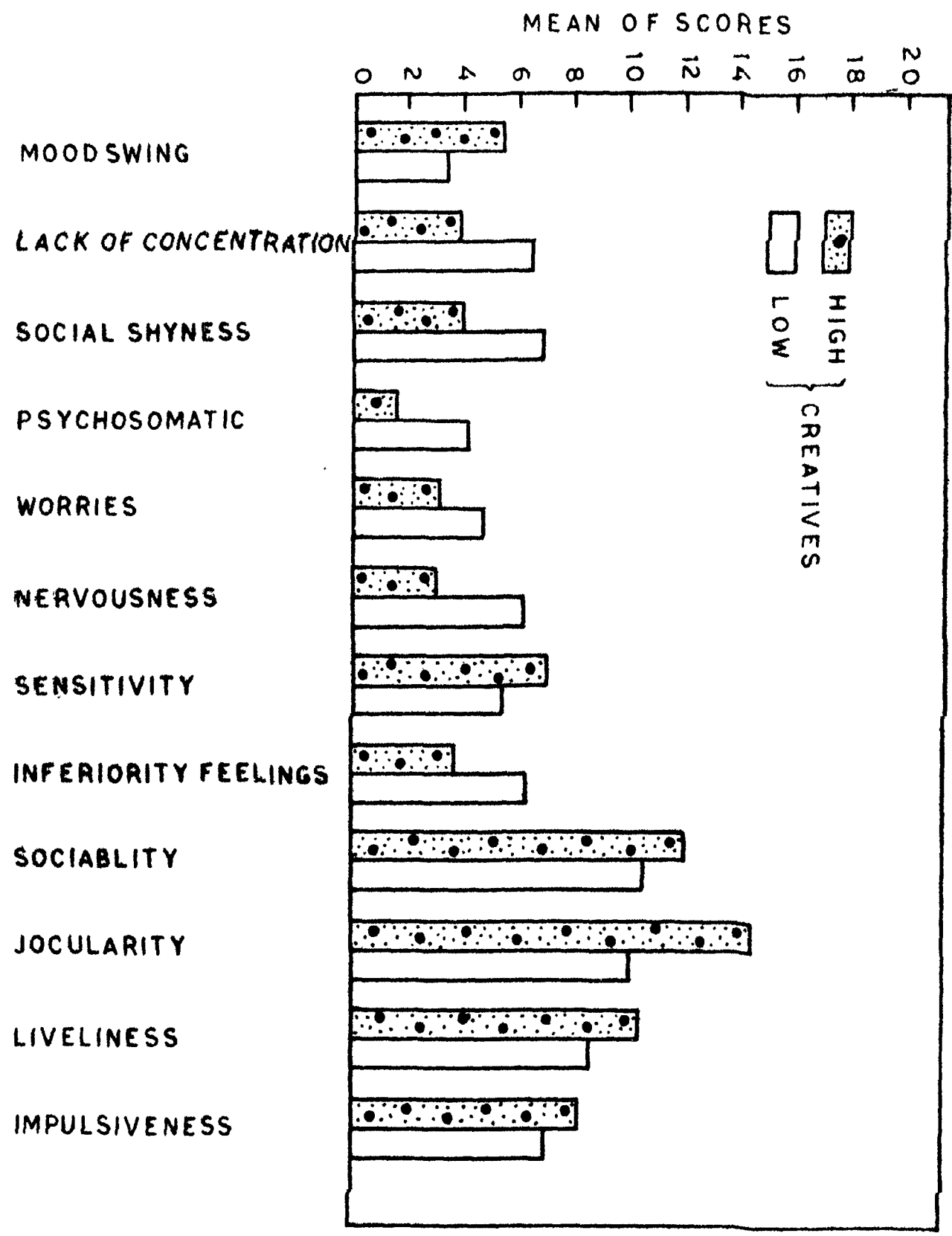
TABLE NO. IV ON SEPARATE PAGE

TABLE IV

COMPUTATION OF 't' VALUES FOR THE 12 PERSONALITY FACTORS

S.No.	Personality factors	High Creatives			Low Creatives			S.E. of the differences of Means	Differences of Means	't' value
		Mean	S.D.	S.E ₁	Mean	S.D.	S.E ₂			
1.	Mood Swings	5.38	1.656	0.2365	3.420	1.297	0.1850	.298	1.96	6.5770
2.	Lack of concentration	3.90	2.004	0.2862	6.600	1.434	0.2048	.3519	2.70	7.6720
3.	Social shyness	3.96	2.778	0.3968	6.900	2.364	0.3377	.5210	2.94	5.6420
4.	Psychosomatic	1.62	1.155	0.1650	4.200	2.705	0.3864	.4201	2.58	6.1413
5.	Worries	3.28	2.581	0.3687	4.820	2.036	0.2908	.4695	1.54	3.2800
6.	Nervousness	3.24	1.761	0.2515	6.280	2.623	0.3747	.4512	3.04	6.7375
7.	Sensitivity	7.02	2.180	0.3114	5.360	2.133	0.3040	.4335	1.66	3.8290
8.	Inferiority feelings	3.80	2.140	0.3057	6.320	2.549	0.3641	.4753	2.52	5.3019
9.	Sociability	12.14	2.341	0.3344	10.460	6.506	0.9294	.3628	1.68	4.6306
10.	Jocularly	14.38	1.521	0.2172	10.060	6.585	0.9407	.9654	4.32	4.4748
11.	Liveliness	10.38	2.481	0.3544	8.580	5.411	0.7730	.8503	1.80	2.5760
12.	Impulsiveness	8.26	2.124	0.0061	7.070	3.813	0.5447	.5446	1.19	2.1850

Fig. 4 Personality profiles of high (N=50) and low (N=50) creatives



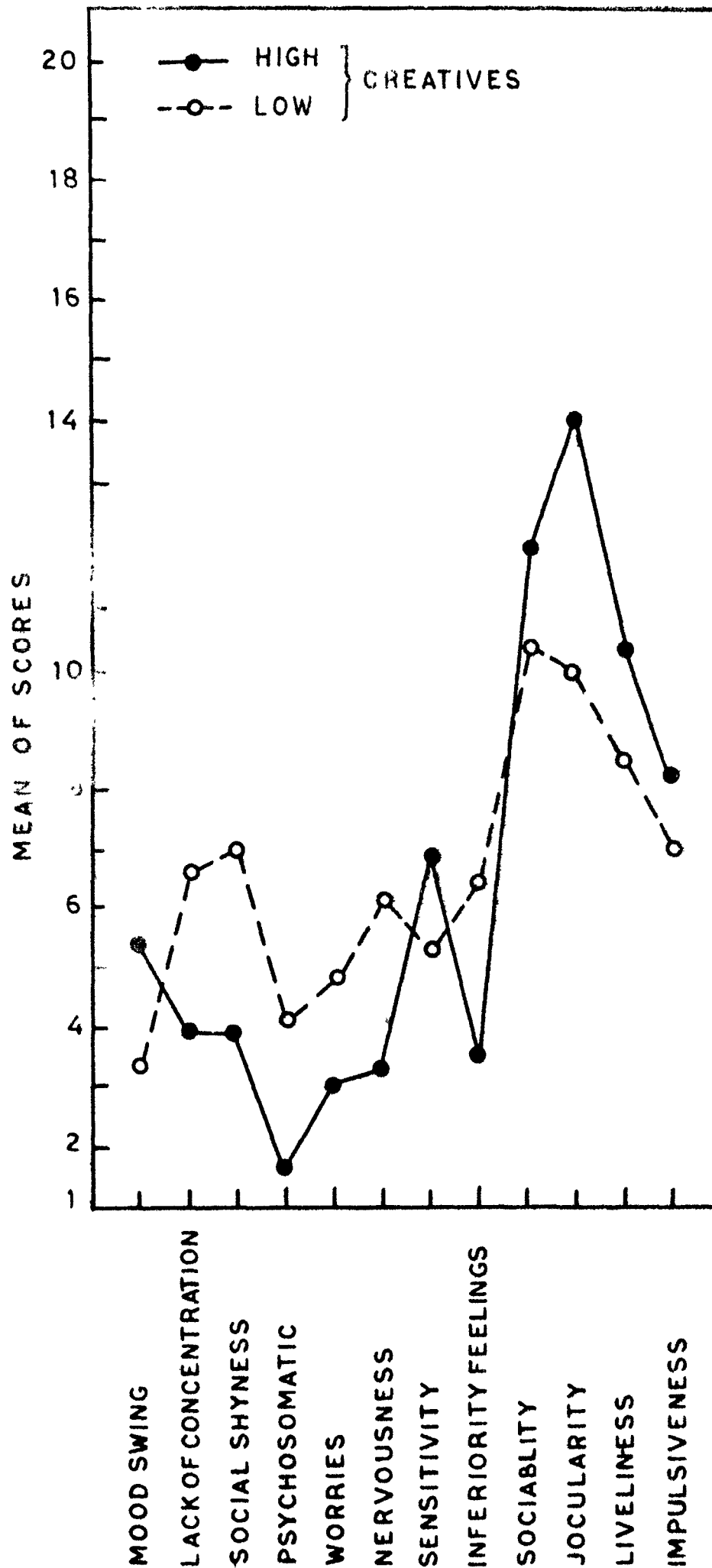


Fig 3 Personality profiles of high (N=50) and low (N=50) creatives

It will be seen from Table IV that all the 't' values for the difference between the mean scores obtained by high and low creatives on different personality factors are significant beyond .01 level except that for personality factors "liveliness" and impulsiveness. The 't' value for liveliness is nearly significant at .01 level and that for 'impulsiveness' the 't' value is significant at .05 level. Thus the analysis indicates that very significant differences exist for the difference between the scores obtained by the high and low creatives on the following personality factors:-

- | | |
|-------------------|--------------------------|
| 1. Mood Swings | 2. Lack of concentration |
| 3. Social Shyness | 4. Psychosomatic |
| 5. Worries | 6. Nervousness |
| 7. Sensitivity | 8. Inferiority Feelings |
| 9. Sociability | 10. Jocularly |
| 11. Liveliness | |

The 't' value for impulsiveness is also quite significant. The mean scores on the different personality factors obtained by high and low creatives have also been represented in Figure No. 3 ^{and No. 4} (personality profiles of high and low creatives)

The high creatives have secured a mean score of 5.38 on the personality factor mood swings and that for

the low creatives is 3.42. The 't' value for this difference is 6.577, which is very significant showing thereby that the mood of high creatives is very unstable as compared to low creatives. This is also borne out of every day experience. Artists who are highly creatives are wellknown to possess unstable moods. However, the researches in the area do not generally tend to support this findings. Guilford, Christensen, Frick & Merrifield (1957), Mackinnon (1963) found that creatives are rather stable than neurotic. Perhaps this difference in the results of the present investigator and that of the researchers mentioned above is due to the fact that the factor employed in the present research measures only the "mood swings" and 'neuroticism' the dimension employed in the above mentioned researches is a composite one. "Mood swings" is but only one facet of 'neuroticism'.

The high creatives have been found to possess a higher power of concentration than the low creatives, the mean score on 'lack of concentration' for the high and low creatives being 3.9 and 6.6 respectively with a 't' value of 7.672. The related research also shows that a creative person tends to work for long hours even in face of formidable obstacles and he is devoted to his goal. (Kneller, 1965; Stein, 1962; Chambers, 1964; Barron, 1957; Torrance, 1962; Massials & Zevin, 1967; Parloff & Datta,

1965). Thus the findings of the present investigations are fully corroborated by the previous research.

The mean scores on 'social shyness' obtained by the high and low creatives are 3.96 and 6.9 (t value 5.642) respectively. The difference in the mean score is very significant which shows that the high creatives are less socially shy than the low creatives. This finding also finds support from the related research. The creative persons are dominant over others in social interaction and intellectual meetings (Barron, 1957; Getzele and Jackson, 1962; Torrance, 1962; Stein, 1960; Heinze, 1960; Guilford, Christensen, Frick & Merrifield, 1957; Babu, 1977; Zelot, 1954; Kerr, 1954, Garwood, 1964). Perhaps lack of social shyness is a result of self-confidence on the part of the individual. Kneller (1965), Guilford, Christensen, Frick & Merrifield (1957), Jha (1975), Stein and Heinze (1960), Mackinnon (1964), Taylor (1964), Ellision (1964), Deva (1979), Cattell (1966), Zevin (1960), Parloff & Datta (1965) found that a creative person has more than an average degree of self-confidence. Thus this finding also indirectly supports the results of the present study.

The personality factor 'psychosomatic' is characterized by such responses as 'has dizzy turns', 'gets

very bad headaches', 'Becomes breathless without doing hard work', 'Gets fits of shivering', blood pressure increased due to anger. The high creatives have yielded a score of 1.62 and the low creatives have obtained a score of 4.2 with a 't' value of 6.1413 on personality factor 'psychosomatic' which shows that high creatives are less 'psychosomatic' than the low creatives. Since a creative person is radical and opposes stereotyped thinking and is devoted to his goal, he is not likely to be 'psychosomatic'. Researches by Getzels & Jackson (1962), Kneller (1965), Stein and Heinze (1960), Verma (1973), Palm (1959), Zelot (1954), Kerr (1954), Zevin (1966), Barron (1957) have shown that a creative is radical and is opposed to stereotyped thoughts. Researches quoted in para 2 above show that a creative person is devoted to his goal. Thus the findings of the present study are supported by related research.

A creative person is less worried than a non-creative. The creatives and non-creatives have secured mean scores of 3.28 and 4.82 respectively ('t' value = 3.28) on the personality dimension 'worries'. Study by Mackinnon (1964) support this finding.

The creative persons have obtained a mean score of 3.24 on 'nervousness' and that for the low creatives is 6.24. The 't' value for the difference is 6.7375.

This shows that high creatives are less nervous than the low creatives, i.e. the high creatives are more confident than the low creatives. The related researches have also shown that a creative person possesses more than average degree of confidence (Kneller, 1965; Guilford, Christensen, Frick & Merrifield, 1957; Jha, 1975; Stein & Heinze, 1960; Mackinnon, 1964; Taylor, 1964; Ellision, 1964; Deva, 1979; Cattell, 1966; Zevin, 1960; Parloff & Data, 1965).

The present investigation has found that the high creatives are more sensitive than the low creatives. The mean scores on sensitivity obtained by high and low creatives is 7.02 and 5.36 respectively ('t' value = 3.829). This finding also gets a strong support from researches in the area. Jha (1975), Kneller (1965), Stein & Heinze (1960), Mackinnon (1963), Palm (1959), Babu (1979), Getzels & Csikszentmihayli (1964), Cattell (1966), Massials & Zevin (1967) found that a high creative child is more emotionally sensitive to his environment than the low creative child.

The high creatives have a lesser feeling of inferiority than the low creatives. The mean score on 'Inferiority feeling' obtained by the high and low

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CHAPTER V

SUMMARY

Conclusions

Suggestions

SUMMARY

Man's creative imagination has played an important role in the development of society. Civilization have advanced because of great imagination of its people. The progress and potential of a country is measured in terms of its great thinkers, artists, scientists etc. Behind every glorious act or product, there had been an active support of creative thinking. Thus creativity is of paramount importance for the progress and welfare of a nation. Attempts should, therefore, be made to identify the creative personality from very beginning and provide conditions in the school and outside so that it blossoms to maximum. A variety of cognitive measures of creativity are available. These measures concentrate on a given act of creativity which the person performs in a given test situation. A study of life histories of creative individuals reveals that creatives were not full of creative ideas at all times, but such ideas came to their minds in flashes. So, these tests cannot be employed in all situations with similar efficiency. It has been found that a creative person possesses a well-defined personality. (Sharma, 1974). Thus if it is

possible to identify the characteristics of a creative personality then the identification of creative person would become a comparatively easy task. A large number of researches have been attempted in this regard in the western countries. Some attempts have also been made in this connection in India. (Verma, 1973; Jha, 1975; Babu, 1977 and Deva, 1979) These studies have, however, failed to arrive at a consistent picture of creative personality. The present study, therefore, attempts to identify the personality characteristics of a creative person.

The present study seeks to identify the personality characteristics which distinguish^{es} between high and low creative students studying in high school classes in some public schools of Delhi.

Students studying in high school classes in some public schools of Delhi were administered Baget Mehdî's test of creativity (verbal form). A personality Inventory specially designed for this purpose was also administered to these students. The sample of the study consisted of 225 students. These students were divided into 3 groups on the basis of this creativity scores. The upper 50 score constituted the high creative and the lowest 50 students were designated as low creative students. The

rest were termed as average on creativity. A 't' test was applied to study the significance of difference between the means of scores obtained on the different personality dimensions by high and low creativity students. This resulted in the identification of characteristics that differentiate significantly between high and low creatives. A personality profiles of high and low creatives was also drawn.

Table No.5 presents the means of scores on the different personality factors obtained by high and low creatives. The 't' value for the difference between these means have also been presented in the same table.

TABLE NO.5 . MEANS OF SCORES OBTAINED ON DIFFERENT PERSONALITY FACTORS BY HIGH AND LOW CREATIVE AND 't' VALUES FOR THE DIFFERENCE

S.No.	Names of factors	Mean of high creatives	Mean of low creatives	't' value
1.	Mood Swings	5.38	3.42	6.5770
2.	Lack of concentration	3.90	6.60	7.6720
3.	Social shyness	3.96	6.90	5.6420
4.	Psychosomatic	1.62	4.20	6.1413
5.	Worries	3.28	4.82	3.2800
6.	Nervousness	3.24	6.28	6.7375
7.	Sensitivity	7.07	5.36	3.8290
8.	Inferiority feelings	3.80	6.32	5.3019
9.	Sociability	12.14	10.46	4.6306
10.	Jocularity	14.38	10.06	4.4748
11.	Liveliness	10.38	8.58	2.5760
12.	Impulsiveness	8.26	7.07	2.1850

It will be seen from the above table that all the 't' values are significant or nearly so at .01 level for all the personality factors except 'impulsiveness', for which the 't' value is significant at .05 level. The table clearly indicates that a highly creative individual has a more unstable mood, more concentration, less social shyness, less psychosomatic features, less worries, less nervous, more sensitive, less inferiority feelings, more sociability, more jocularity, more liveliness and more impulsiveness. These findings of the present investigation gets fairly support from the related research

Suggestions :-

1. The cognitive measures of creativity concentrate on a given act of creativity in a given test situation. Creative persons are not full of creative ideas at all times, but such ideas come to their minds in flashes. Therefore, the cognitive measures are not likely to be valid measures of creativity in all test situations. Since a well-defined personality, the personality profiles of high and low creatives evolved in the present study may be employed as a valid measure of creativity.
2. The present educational system neither helps in identifying nor in fostering creativity. It exerts

a dampening effect on the creative urge. Recently experiments have been conducted in the west to provide conditions which may help to foster creativity. A knowledge of the distinguishing personality characteristics of creative adolescents is likely to be of help in conducting such experiments.

Suggestions for further Researches :-

1. The present study has employed only a verbal measure of creativity for identifying high and low creatives. Other suitable measures such as non-verbal measures of creativity, Test of Ingenuity etc. may be employed in further researches for this purpose.
2. The personality inventory employed in the present study measures, only 12 characteristics of personality. Other inventories which measure some other characteristics of personality may be employed to arrive at a more comprehensive picture of a creative person.
3. The measure of personality employed in the present study is an inventory. It is well-known that the responses to such an instrument may be easily faked. Therefore, projective techniques may be employed for identifying the personality characteristics of a creative person.
4. Measures of intellect other than creativity like intelligence may play an important role in experiment

designed to foster creativity. Therefore, researches may be conducted to identify personality characteristics person high or low on creativity and one such measure for example high creative, high intelligence or high creative low intelligence etc.

5. The present investigation has employed 't' test to test the significance of difference between the means of scores obtained on different personality factors by high and low creatives. Analysis of variance or covariance may be employed for this purpose, particularly when variables like intelligence etc. have to be controlled.

The study of the personality characteristics of creative persons is beset with a number of problems. The investigators is conscious of the various shortcomings of the present study, but it is being submitted with the hope that it may stimulate further research in the area.